Steps for GenerationPlant_TS_Sample1

1. Load project GenerationPlant_TS_Sampel1.
2. Select Base revision data, OLV1 presentation, and Operating configuration.
3. Select Salient-Pole Subtransient model and typical data for Gen1 and Gen2.
4. Enter PrimeMover H 0.5 and Generator H 3.5 for Gen1 and Gen2.
5. Select AC2 exciter type and sample data for Gen1 and Gen2.
6. Select ST2 governor type and sample data for Gen1 and Gen2.
7. Select Single2 HV-HS-HT MV4700HP4P model for Mtr1 and accept Update option.
8. Enter Motor H 1.1 and Load H 0.5 for Mtr1.
9. Select COMP CENT load model for Mtr1.
10. Set to TS study mode.
11. Open Study Case Editor for TS case.
12. Enter Total Simulation Time 40 sec. and Plot Time Step 50.
13. Add an event 1 at 1.000 sec.
14. Add an action of bus Gen2 Bus 3 Phase Fault to the event 1.
15. Select to plot Gen1, Gen2, Mtr1, bus 241X, 242X, Gen1 Bus, Gen2 Bus, SWGR 251, SWGR 252.
16. Run TS study with output FaultGen2Bus.
17. Select both Gen1 and Gen2 to plot. Check Generator Relative Power Angle. Notice Gen2 power angle exceeds 180 degree (slip-the-pole) at 1.4 sec.
18. Open Study Case Editor for TS case.
19. Add the second event 2 at 1.400 sec. (0.4 sec. after the fault).
20. Add an action of bus Gen2 Bus Clear Fault to the event 2.
21. Run TS study with output ClearFault0_4Sec.
22. Select both Gen1 and Gen2 to plot. Check Generator Relative Power Angle. Notice Gen2 power angle still exceeds 180 degree (slip-the-pole).
23. Open Study Case Editor for TS case.
24. Modify the second event (clear fault) time from 1.400 sec. down and run the study to check Gen2 relative power angle to see whether it will be less than 180 degree (stable).
25. Eventually find out the second event (clear fault) time at 1.300 sec. (0.3 sec. after the fault) to keep Gen2 relative power angle less than 180 degree (stable). Save the output ClearFault0_3Sec.
26. Set VR1 In Service and add two UnderVoltage (27) Control Interlock: 70 V% CB14 and CB15 Open 0.002 sec. Delay.
27. Set VR2 In Service and add two OverVoltage (59) Control Interlock: 90 V% CB14 and CB15 Close 1.000 sec. Delay.
28. Set VR3 In Service and add two UnverVoltage (27) Control Interlock: 70 V% CB13 and CB16 Open 0.002 Delay.
29. Set VR4 In Service and add two OverVoltage (59) Control Interlock: 90 V% CB13 and CB16 Close 1.000 sec. Delay.
30. Run TS study with output ClearFault0_3SecWithVRelay.

Steps for GenerationPlant_TS_Sample1

31. Check Gen2 relative power angle maximum
32. View Transient Stability Action List for all actions (study case and relay):
33. One-line view at 4.051 sec. (CB13, CB14, CB15, CB16 open).
34. One-line view at 26.848 sec. (CB13, CB14, CB15, CB16 re-closed).